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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,531	03/11/2005	Kazutake Ogyu	267331US90PCT	7617

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
LIAO, DIANA J	

ART UNIT	PAPER NUMBER
4116	

NOTIFICATION DATE	DELIVERY MODE
11/02/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/527,531	OGYU ET AL.	
	Examiner	Art Unit	
	Diana J. Liao	4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. Claims 1-8 are pending and presented for examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) was submitted on 3/11/2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa, et al. (US 5,733,352) in view of Suwabe, et al. (US 6,827,754).

Ogawa, et al. teaches a honeycomb structure and a diesel particulate filter consisting of silicon carbide comprising this structure. (col 1, lines 7-11) The structure is described as having a number of through-holes extending from the inlet to outlet that are separated by porous walls. The through-holes are either sealed at the inlet or the outlet, so that any gas entering through the open inlet holes must pass through the porous walls and thus be filtered, before exiting through the outlet walls. (col 1, lines 18-28) The roughness of the porous walls is to be at least 30 μm and the average pore size 10-40 μm. (col 2, lines 58-67) The upper limit on roughness is preferably placed at 50 μm. There are also several roughness values, including one of 85 μm, listed for sample products made in Table 4. (col 13) The thickness of the wall in the samples is 0.4mm. (col 10, lines 16-17) Given this wall thickness, the value of A as defined by the claims has to be less than or equal to 70% or 80%.

Ogawa, et al. differs from the instant claims because it does not mention properties that could confirm a relationship of:

$$A \leq 90 - B/20 \quad \text{or} \quad A \leq 100 - B/20$$

where A is a ratio between the number of pores of 0.9-1.1 times the average pore size and total pore volume in units of percentage, and B is the wall thickness in μm.

However, it would be obvious to one of ordinary skill in the art to produce such a product in view of Suwabe, et al.

Suwabe, et al. also discloses a ceramic honeycomb filter with porous partition walls for use with exhaust gas. (See abstract.) The examiner interprets A to be the percentage of pore volume contributed to by particles of average size. The wall thickness given by Suwabe, et al. is 0.15-0.33 mm. (col 13, Table 2) The value of A that is necessary to satisfy the relation in the instant claims is 82.5% and 92.5%. The examiner finds that this value is not one that is difficult to attain or one that has not already been attained.

In addition, the wall thicknesses of Ex.1 and Ex. 2 is 0.30 mm (col 11, line 5) and has an average pore diameter of 20.8 and 22.0 μm (Table 1), leading to a value of A which has to be less than or equal to 75% and 85%. Although Suwabe, et al. does not teach expressly teach a value of A, it does suggest it. Figure 6 of Suwabe, et al. shows a relationship between S_n, the slope of a cumulative pore volume curve, and pore diameter. (Note the non-linear scale of the pore diameter axis.) Visually integrating this curve, one can see that although the pores closer to the mean diameter contain more of the total pore volume than any other size pore, that this contribution appears to meet percentages necessary to satisfy the claim. In addition, given that there are methods in the art to both increase and decrease pore distribution, such as choosing the pore sizes of the starting products in the manufacturing of such honeycomb structures, the limitation in instant claims 1-3 regarding A is not found to be a patentable characteristic.

One would be motivated to modify Ogawa, et al. in view of Suwabe, et al. because they both deal with the same subject matter, and Suwabe, et al. claims a support structurally improved in terms of mechanical strength and pressure drop.

Therefore, claims 1-4, 7 and 8 are not found patentable over prior art.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa, et al. in view of Suwabe, et al. as applied to claims 1-4, 7 and 8 above, and further in view of Hijikata (US 7,087,286).

Ogawa, et al. teaches that the structure may be used as a carrier for a catalyst (col 5, lines 20-21). Suwabe, et al. teaches a resin used to seal the ceramic structure, though it is not used to bundle the ceramic members. (Figure 10a) However, it does not teach a coating layer of catalyst, or a sealing material between porous ceramic members.

However, it would be obvious to one of ordinary skill in the art to coat the support with a catalyst or use a sealing material layer to bundle the ceramic structures in view of Hijikata.

Hijikata teaches making a honeycomb structure by bonding a plurality of honeycomb segments. (See abstract.) In figures 9(a) to 13(b), the portion labeled as (7) is an adhesive, which is considered to be a sealing material layer. Hijikata also mentions loading a catalyst onto the honeycomb segments. (col 2, lines 61-67) Using a coating of catalyst is considered to be an obvious method for depositing catalyst, which is taught by both Ogawa, et al. and Hijikata.

One would be motivated to use an adhesive between ceramic members in order to obtain the size and shape desired for the device it will be used in. One would be motivated to provide a layer of catalyst in order to facilitate the exhaust gas purification.

Therefore, claims 5 and 6 are not found patentable over prior art.

Conclusion

Claims 1-8 were presented for examination. Claims 1-8 have been rejected. No claims have been allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diana J. Liao whose telephone number is 571-270-3592. The examiner can normally be reached on Monday - Friday 7:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJL

VICKIE Y. KIM
SUPERVISORY PATENT EXAMINER